What is claimed is:

1. An image processing method comprising the steps of:

combining a higher-luminance pixel to be driven at a higher luminance than luminance data of an image to be displayed and a lower-luminance pixel to be driven at lower luminance than the luminance data; and

determining a luminance on the higher-luminance pixel and luminance on the lower-luminance pixel and an area ratio of the higher-luminance pixel and the lower-luminance pixel so that a luminance can be obtained substantially equal to a desired luminance based on the luminance data.

2. An image processing method according to claim 1, wherein the combination of the higher-luminance pixel and the lower-luminance pixel changes frame by frame.

3. An image processing method according to claim 1, wherein an area ratio of the higher-luminance pixel and the lower-luminance pixel is from 1 : 1 to 1 : 20.

4. An image processing method comprising the steps of:

combining a higher-luminance frame for driving a pixel at a higher luminance than luminance data of an image to be displayed and a lower-luminance frame for driving a pixel at a lower luminance than the luminance data; and

determining a luminance on the higher-luminance pixel and luminance on the lower-luminance pixel and an existence ratio of the higher-luminance frame and the lower-luminance

frame so that a luminance can be obtained substantially equal to a desired luminance based on the luminance data.

5. An image processing method according to claim 4, wherein an existence ratio of the higher-luminance frame and the lower-luminance frame is from 1 : 1 to 1 : 20.

6. A liquid-crystal display device having a liquid crystal sealed between an array substrate and an opposite substrate that are oppositely arranged with a predetermined cell gap, the liquid-crystal display device characterized by having a drive circuit for realizing an image processing method according to claim 1.

7. A liquid-crystal display device according to claim 6, wherein the liquid crystal has a negative dielectric anisotropy and is in a vertical alignment under no application of voltage.

8. An image processing method according to claim 1, wherein a correlation in an oblique direction to a panel between a tone level and a luminance has a change rate greater after image processing than before image processing.

9. An image processing method according to claim 8, wherein the higher-luminance pixel and the lower-luminance pixel exist together within a same frame.

10. An image processing method according to claim 9,

wherein the higher-luminance pixel and the lower-luminance pixel exist together at an area ratio of 1 : 1.

11. An image processing method according to claim 8, wherein an optimal conversion table is selected under a predetermined condition from a plurality of conversion tables for determining a luminance of the higher-luminance pixel and a luminance of the lower-luminance pixel, depending upon the luminance data inputted.

12. An image processing method according to claim 11, wherein, of a plurality of pixels provided based on color, the conversion table on one color of the pixel is different from the conversion table on another color of the pixel.

13. An image processing method according to claim 12, wherein the pixel for red has a difference between a luminance on the higher-luminance pixel and a luminance on the lower-luminance pixel assuming a minimum at least in a predetermined luminance range.

14. An image processing method according to claim 12, wherein image processing is not made on the pixel for red.

15. An image processing method according to claim 12, wherein the pixel for red has a difference between a luminance on the higher-luminance pixel and a luminance on the lower-luminance pixel assuming a minimum at least in a predetermined luminance range, and

the pixel for blue has a difference between a luminance on the higher-luminance pixel and a luminance on the lower-luminance pixel assuming a maximum at least in a predetermined luminance range.

16. An image processing method according to claim 12, wherein the pixel for green has a difference between a luminance on the higher-luminance pixel and a luminance on the lower-luminance pixel assuming a maximum at least in a predetermined luminance range.

17. An image processing method according to claim 11, wherein the luminance data in different colors are compared to select the conversion table depending upon a tone of luminance.

18. An image processing method according to claim 11, wherein the luminance data for a plurality of pixels are compared to select the conversion table depending upon a luminance difference.

19. An image processing method according to claim 8, wherein a decrease of luminance as viewing a display device obliquely is small on a pixel (color) at high tone level, based on an original tone level, and great on a pixel (color) at low tone level, wherein a luminance difference on between the pixels (colors) in an oblique direction does not exceed a luminance difference of in the frontward.

20. An image processing method according to claim 19, wherein a plurality of ones of the luminance data inputted are compared or a plurality of ones of the luminance data inputted are compared color by color, whereby image processing is not made on a highest tone of luminance data.

21. An image processing method according to claim 11, wherein a plurality of ones of the luminance data inputted are compared or a plurality of ones of the luminance data inputted are compared color by color, to select the conversion table and carry out an image processing.

22. An image processing method according to claim 11, wherein a plurality of ones of the luminance data inputted are compared or a plurality of ones of the luminance data inputted are compared color by color, to use a common one of the conversion table in a case tone level is equal between two and more colors or pixels.

23. An image processing method according to claim 11, wherein a plurality of ones of the luminance data inputted are compared or a plurality of ones of the luminance data inputted are compared color by color, to use a conversion table determined by interpolation from a plurality of the conversion tables in a case tone level on two and more colors or pixels is within a predetermined range.

24. An image processing method according to claim 11, wherein a plurality of ones of the luminance data inputted are

compared or a plurality of ones of the luminance data inputted are compared color by color, wherein, in a case conversion process is made different when tone level is equal between two and more colors or pixels, processing is made as same tone level in case tone level on each color or pixel is within a predetermined range.

25. An image processing method according to claim 8, wherein tone level is compared between the immediately preceding frame and an original image, not to carry out a conversion process into light intensity in a case there is a change greater than an arbitrary number of tone levels.

26. An image processing method comprising the steps of:

making a display of luminance data of an image to be displayed at a luminance higher than the luminance data in one frame and at a lower luminance in another frame; and

providing light intensity level with a difference in an order of RGB tone level based on each color of RGB near in tone level, and

using a tone -level conversion table different between when the order of tone level changes between frames and when does not change.

27. An image processing method according to claim 26, wherein, when the order of tone level changes between the frames and the difference of tone level is greater than that of a preceding frame, tone level is corrected toward decrease for a pixel to be set to start at higher luminance.

28. An image processing method according to claim 26, wherein, when the order of tone level changes between the frames and the difference of tone level is greater than that of a preceding frame, low tone level is maintained in an amount of one frame even on a pixel to be set to start at higher luminance.

29. An image processing method according to claim 26, wherein, when the order of tone level changes between the frames and the difference of tone level is greater than that of a preceding frame, a tone level inputted is maintained without carrying out a tone-level conversion in an amount of one frame even on a pixel to be set to start at higher luminance.

30. An image conversion processing method comprising the steps of:

making a display of luminance data of an image to be displayed at a luminance higher than the luminance data in one frame and at a lower luminance in another frame;

wherein a plurality of combinations of higher-luminance and lower-luminance intensity levels to be outputted for an input tone level are previously determined in plurality; and

when switching over the combination to be selected on the basis of an order of tone level based on a color of RGB, correction is made corresponding to that, when certain two colors AB have a tone level difference fully distant, a relationship is given as AH(x), BH(x) for higher luminance and AL(x), BL(x) for lower luminance wherein, when the two colors have a tone level difference neared to n, a tone level of the

higher luminance is (BH(x) - AH(x)) × α/N and a tone level of the lower luminance is (AL(x) - BL(x)) × α/N
(α = n - m, where if n - m > N, then α = N, m is an arbitrary number equal to or greater than 0), as a result of which the relationship is gradually changed in accordance with n.

31. An image processing method comprising the steps of:

making a display of luminance data of an image to be displayed at a luminance higher than the luminance data in one frame and at a lower luminance in another frame;

wherein there are combinations of higher-luminance and lower-luminance intensity levels to be outputted for an input tone level in the number of basic three as A ≤ B ≤ C that are different in magnitude of luminance difference, to switch over the combination selected from ABC in a manner to provide a luminance difference small for a light color, great for a dark color and intermediate for an intermediate color based on each color of RGB, whereby a combination table of after tone-level conversion for an input tone level x is given as AH(x), BH(x) and CH(x) for higher luminance and AL(x), BL(x) and CL(x) for lower luminance and, in a case, with respect to a color of intermediate luminance, another color is neared to a tone level difference n, the relationship is gradually changed in accordance with n.

32. An image processing method according to claim 31, further comprising, besides three basic combination tables for converting tone level of the three colors, at least one or more auxiliary combination tables in positions between them, wherein,

in a case a tone level difference between colors is neared to carry out a process of gradual switching over between the basic tables, the basis table is divided by the auxiliary table into a plurality, to operate such that gradual switching over is made as the basic - the auxiliary or the auxiliary - the auxiliary thereby making a conversion into a determined tone level.

33. An image processing method according to claim 31, wherein a tone level width n, for carrying out a process of gradually changing a post-conversion tone level by operation, is given within a range of from 0/255 to 64/255 with respect to an entire tone levels.

34. An image processing method comprising the steps of:

making a display of luminance data of an image to be displayed at a luminance higher than the luminance data in one frame and at a lower luminance in another frame;

wherein a plurality of combinations of higher-luminance and lower-luminance intensity levels to be outputted for an input tone level are previously determined; and

when switching over the combination selected on the basis of an order of tone level based on each color of RGB, in a case an input value is same even in case the combination of higher luminance and lower luminance is changed, a luminance in average is within a shift of 10%.

35. An image processing method comprising the steps of:

making a display of luminance data of an image to be displayed at a luminance higher than the luminance data in one

frame and at a lower luminance in another frame;

wherein a frequency A of higher luminance and a frequency B of lower luminance having a ratio in a tendency toward B < A as image data to be displayed is lower in luminance.

36. An image processing method according to claim 34, wherein, even in case the combination of higher luminance and lower luminance is changed, if the inputted value is same, a characteristic of tone level value of driver versus panel transmissivity is set such that a luminance in average is given within a shift of 10%.

37. A liquid-crystal display device having a liquid crystal sealed between an array substrate and an opposite substrate that are oppositely arranged through a predetermined cell gap, wherein the liquid-crystal display device having a driver circuit for realizing an image processing method according to claim 8.

38. A liquid-crystal display device according to claim 37, wherein a frame frequency is higher than 60Hz.

39. A liquid-crystal display device according to claim 37, wherein, in a case a same voltage is applied, at least two different response speeds are possessed within one pixel and the different response speed has a difference of equal to or greater than 3 ms.

40. A liquid-crystal display device according to claim

37, wherein each pixel has therein microscopic domains different in alignment direction for the liquid crystal, the microscopic domains different in alignment direction for the liquid crystal are substantially equal in percentage.

41. A liquid-crystal display device according to claim 37, wherein the liquid crystal has a negative dielectric anisotropy and is vertically aligned under no application of voltage.

42. An image processing method comprising the steps of:

generating higher tone data and lower tone data from an image signal inputted by an interlaced scheme; and

mixing the higher tone data and the lower tone data at least one of in time and in space, thereby displaying an image.

43. An image processing method according to claim 42, wherein it is determined whether the image signal is for odd-numbered line or for even-numbered line, to change a display form of the higher tone data and lower tone data depending upon a determination result.

44. An image processing method according to claim 43, wherein, in an odd-numbered frame for displaying an image signal for odd-numbered line, the higher tone data and lower tone data is generated from the image signal for odd-numbered line thereby making a display on the odd-numbered line and even-numbered line ;

in the even-numbered frame for displaying an image signal

for even-numbered line, the higher tone data and lower tone data is generated from the image signal for even-numbered line thereby making a display on the odd-numbered line and even-numbered line.

45. An image processing method according to claim 44, wherein, in the odd-numbered frame, the higher tone data is written to an odd-numbered line and the lower tone data is to an even-numbered line;

in an even-numbered frame, the higher tone data is written to an even-numbered line and the lower tone data is to an odd-numbered line.

46. An image processing method according to claim 44, wherein, in the odd-numbered frame, the higher tone data is written to an even-numbered line and the lower tone data is to an odd-numbered line;

in the even-numbered frame, the higher tone data is written to an odd-numbered line and the higher tone data is to an even-numbered line.

47. An image processing method according to claim 45, wherein a line the higher tone data and the lower tone data are to be written is changed frame by frame in order.

48. An image processing method according to claim 44, wherein, in the odd-numbered frame, the higher tone data is written to an pixel at an end of an odd-numbered line to thereby alternately write the lower tone data and the higher tone data,

in order, to pixels within the line, and the lower tone data is written to an pixel at an end of an even-numbered line to thereby alternately write the higher tone data and the lower tone data, in order, to pixels within the line;

in the even-numbered frame, the lower tone data is written to an pixel at an end of an odd-numbered line to thereby alternately write the higher tone data and the lower tone data, in order, to pixels within the line, and the higher tone data is written to an pixel at an end of an even-numbered line to thereby alternately write the lower tone data and the higher tone data, in order, to pixels within the line.

49. An image processing method according to claim 44, wherein, in the odd-numbered frame, the lower tone data is written to an pixel at an end of an odd-numbered line to thereby alternately write the higher tone data and the lower tone data, in order, to pixels within the line, and the higher tone data is written to an pixel at an end of an even-numbered line to thereby alternately write the lower tone data and the higher tone data, in order, to pixels within the line;

in the even-numbered frame, the higher tone data is written to an pixel at an end of an odd-numbered line to thereby alternately write the lower tone data and the higher tone data, in order, to pixels within the line, and the lower tone data is written to an pixel at an end of an even-numbered line to thereby alternately write the higher tone data and the lower tone data, in order, to pixels within the line.

50. An image processing method according to claim 48,

wherein the pixel the higher tone data and the lower tone data are to be written is changed frame by frame in the order.

51. An image processing method according to claim 43, wherein the higher tone data and the lower tone data are prepared based on the image signal for odd-numbered line, to write the higher tone data and the lower tone data to the odd-numbered line over two frames;

the higher tone data and the lower tone data are prepared based on the image signal for even-numbered line, to write the higher tone data and the lower tone data to the even-numbered line over two frames.

52. An image processing method according to claim 51, wherein the higher tone data for odd-numbered line is displayed on an odd-numbered line of the odd-numbered frame, the lower tone data for odd-numbered line is displayed on an odd-numbered line of the even-numbered frame, the higher tone data for even-numbered line is displayed on an even-numbered line of the even-numbered frame, and the lower tone data for even-numbered line is displayed on an even-numbered line of the odd-numbered frame.

53. An image processing method according to claim 52, wherein, in the odd-numbered frame, higher tone data for odd-numbered line is displayed on an odd-numbered line and lower tone data for even-numbered line inputted in a preceding frame on an even-numbered line;

in the even-numbered frame, higher tone data for

even-numbered line is displayed on an even-numbered line and lower tone data for odd-numbered line inputted in the preceding frame on an odd-numbered line.

54. An image processing method according to claim 52, wherein, in the odd-numbered frame, the higher tone data for odd-numbered line is displayed on an pixel at an end of an odd-numbered line to thereby alternately display the higher tone data and the lower tone data, in order, on pixels of the odd-numbered line, and lower tone data for even-numbered line is displayed on an pixel at an end of an even-numbered line to thereby alternately display the higher tone data and the lower tone data, in order, on pixels of the even-numbered line;

in the even-numbered frame, the higher tone data for even-numbered line is displayed on an pixel at an end of an even-numbered line to thereby alternately display the higher tone data and the lower tone data, in order, on pixels of the even-numbered line, and lower tone data for odd-numbered line is displayed on an pixel at an end of an odd-numbered line to thereby alternately display the higher tone data and the lower tone data, in order, on pixels of the odd-numbered line.

55. An image processing method according to claim 54, wherein a relationship of between odd number and even number and between high tone level and low tone level is displayed by replacement with each other frame by frame.

56. An image processing method according to claim 42, wherein display device with tonal representation is carried

out by using the higher tone data and lower tone data, on a display device having pixels in the number of double either one of vertically or horizontally or in the number of double both vertically and horizontally with respect to an input signal being assumed.

57. An image processing method according to claim 56, wherein a plurality of pixels in the number of two or four are taken as one set corresponding to one of data, the pixels forming the one set have, one to one, the higher tone data and the lower tone data, and display is to be made by replacing the higher tone data and the lower tone data frame by frame.

58. An image processing method comprising the steps of:

generating a higher tone drive level and a lower tone drive level from an image signal inputted; and

displaying an image by a halftone process that the higher tone drive level and the lower tone drive level are dispersed in a predetermined area ratio and in time as well.

59. An image processing method according to claim 58, wherein having a plurality of drive patterns for realizing the halftone process (inversion period on a display device, distribution of two or more different drive levels) in terms of area ratio and pattern period, the drive pattern being switched over by an input image.

60. An image processing method according to claim 58, wherein a dispersion period of two or more of the different

drive levels for the halftone process is shifted in time on a neighboring pixel.

61. An image processing method according to claim 60, wherein, on the neighboring pixel, drive level writing is shifted in frame time axis.

62. An image processing method according to claim 58, wherein an alternating current drive polarity to a display device in different two or more halftone drive levels is existed equally in area and in time, thereby eliminating variation in polarity.

63. An image processing method according to claim 59, wherein the halftone dispersion pattern is switched over depending upon an image signal such that a deviation of drive polarity and drive level is minimized in time.

64. An image processing method according to claim 63, wherein the halftone process is implemented based on a block or in a domain.

65. An image processing method according to claim 58, wherein the drive period is changed between a still image and a moving image.

66. An image processing method according to claim 59, wherein the drive pattern is switched over depending upon a tone level distribution based on an RGB pixel or based on a

block of a display image.

67. An image processing method according to claim 58, wherein driving of a display device dependent upon a surrounding environment such as temperature is compensated for to an optimal by detecting an environment condition.

68. An image processing method according to claim 61, wherein, on the neighboring pixel, writing to a display panel is shifted a half frame in time or drive period is increased simultaneous therewith.

69. An image processing method according to claim 58, wherein a halftone process pattern is prepared by error scatter (dither).

70. An image processing method according to claim 58, wherein a halftone process pattern is processed on the colors (RGB) by means of a same pattern.

71. An image processing method according to claim 58, wherein a halftone process pattern is processed on the colors (RGB), random or by a combination, by means of a same pattern and with different periods.

72. An image processing method according to claim 58, wherein a halftone process pattern is processed on the colors (RGB) by means of quite different patterns.

73. An image processing method according to claim 58, wherein a halftone process is made same in drive level for the halftone process by a pair of neighboring pixels to be driven on a reverse polarity to a common level.

74. An image processing method according to claim 58, wherein, for different drive levels for a halftone process, these are combined to thereby shift the drive level on a forward and reverse polarities thereby avoiding an application of DC voltage to the display device.

75. An image processing method according to claim 58, wherein there are provided, in a backward stage, an overdrive process for adjusting a drive level through addition/subtraction by a comparison with an immediately preceding piece of information from an image memory and, in a forward stage, a halftone process, to have an arrangement capable of controlling an overdrive process resolving power up to a tone-level resolving power required in the halftone process.

76. An image processing method according to claim 58, wherein there are provided, in a forward stage, an overdrive process for adjusting a drive level through addition/subtraction by a comparison with an immediate piece of information from an image memory and, in a backward stage, a halftone process, not to set great a difference between a plurality of tables for halftone process.

77. An image processing method according to claim 58, wherein there are provided, in a backward stage, an overdrive process for adjusting a drive level through addition/subtraction by a comparison with an immediate piece of information from an image memory and, in a forward stage, a halftone process, to determine an overdrive operation/non-operation by a comparison with an immediately-preceding frame process level to a halftone process to be carried out.

78. An image processing method according to claim 58, wherein the halftone process and non-process is selected to switch over the drive level.

79. An image processing method according to claim 58, wherein the different drive levels in halftone process has a distribution made reverse in phase at nearby an image contour.

80. An image processing method according to claim 58, wherein the halftone process is carried out at a ×n speed.

81. A liquid crystal display device, wherein a crystal liquid is sealed between a pair of substrates, having a drive circuit for carrying out an image processing method according to claim 42.